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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,085	04/02/2004	Patrick W. Hale	975-135	2142
26909	7590	08/02/2006		
MEMBRANE TECHNOLOGY AND RESEARCH INC. 1360 WILLOW ROAD SUITE 103 MENLO PARK, CA 94025-1516			EXAMINER BUSHEY, CHARLES S	
			ART UNIT	PAPER NUMBER
			1724	

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/817,085

Applicant(s)

HALE ET AL.

Examiner

Scott Bushey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 7,8,14-16,18,23,25-35 and 46-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6,9-13,17,19-22,24 and 36-45 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's election with traverse of Species C, Fig. 5 in the reply filed on June 15, 2006 is acknowledged. The traversal is on the ground(s) that all of the processes use a membrane and that a generic characterization of the differing streams acted upon can be made. This is not found persuasive because the processes readable on the different species are characterized by differing non-common operational steps that are determined by the inlet and outlet streams of the individual processes. Applicant's arguments relative to the generic nature of claim 1 are persuasive and claim 1, as currently recited is deemed generic to each of the delineated species.

The requirement is still deemed proper and is therefore made FINAL.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 9-12, 20-22, 24, and 36-44 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Robb (Figs. 1-4; col. 1, lines 13-15, 25-31; col. 4, lines 54-

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75; col. 5, lines 45-51, 69-75; col. 6, lines 4-7, 13-16, 52-55, 59-60, 65-75; col. 7, lines 19-21, 27-58; col. 9, lines 19-22).

With respect to instant claim 1, the reference disclosure is considered to meet each limitation including the inlet stream being a reject stream from a gas processing plant, since any system or device capable of performing at least a handling, compressing, transporting or any other manipulative action upon a gas stream would meet the broad recitation of the gas processing plant, and thus any means that would provide the subject gas stream to the inlet of the membrane separation system would meet the requirements of the preamble of claim 1.

With respect to instant claim 22, applicant should note the stream passing through compressor (53) in Fig. 3 of the reference. Further, with respect to the step of burning the residue stream as a fuel, in at least the embodiment of the reference wherein natural gas is the residue stream, it is inherent that such a stream will be burned at some point downstream of the membrane separation of helium (permeate stream) from the natural gas (residue stream).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-6, 9-12, 17, 19-22, 24, and 36-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robb.

Robb as applied above substantially discloses applicant's invention as recited by instant claims 1-6, 9-12, 17, 19-22, 24, and 36-44, except for the specific disclosure that the fuel gas of instant claim 17 is used in an engine, turbine, boiler, reboiler, or a fuel cell, and that the permeate gas stream of instant claim 19 is sold as crude helium. With respect to claims 1-6, 9-12, 20-22, 24, and 36-44, they have been rejected above under 35 USC 102(b) and are thus considered to each be anticipated by the disclosure of the reference for the reasons as set forth above. However, even if applicant cannot agree that the reference meets each of the limitations of these claims, it would have been obvious for an artisan at the time of the invention, to provide the inlet stream to the membrane separation processes as disclosed by the reference from a typical gas processing plant or to burn the residue, natural gas stream as a fuel. Likewise, with respect to instant claims 17 and 19, it would have been obvious for an artisan at the time of the invention, to burn the treated stream as a fuel in any well known device, such as an engine or turbine, or to sell the treated stream as crude helium, since to do

otherwise would negate any benefits from the separation of the helium from the inlet reject stream.

8. Claims 13 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robb as applied to claims 1-6, 9-12, 17, 19-22, 24, and 36-44 above, and further in view of Nemser et al.

Robb as applied to claims 1-6, 9-12, 17, 19-22, 24, and 36-44 above, substantially discloses applicant's invention as recited by instant claims 13 and 45, except for the membranes being made from any one of fluorinated dioxoles, fluorinated dioxolanes, and fluorinated cyclically polymerizable alkyl ethers.

Nemser et al (col. 3, line 14; col. 6, lines 45-50) discloses the specific use of fluorinated dioxoles for the material of the membrane to facilitate separation of helium from either nitrogen or methane. It would have been obvious for an artisan at the time of the invention, to substitute the fluorinated dioxole material for the membrane of Robb, in view of the teaching by Nemser et al, since such are well known to provide a high permeability preference for helium over either nitrogen or methane.

### ***Conclusion***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

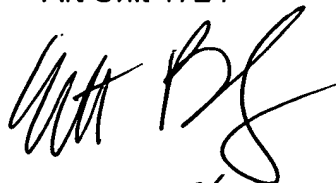
10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Bushey whose telephone number is 571 272-1153. The examiner can normally be reached on M-Th 6:30-5:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Scott Bushey  
Primary Examiner  
Art Unit 1724

  
7-26-06

csb  
7-26-06